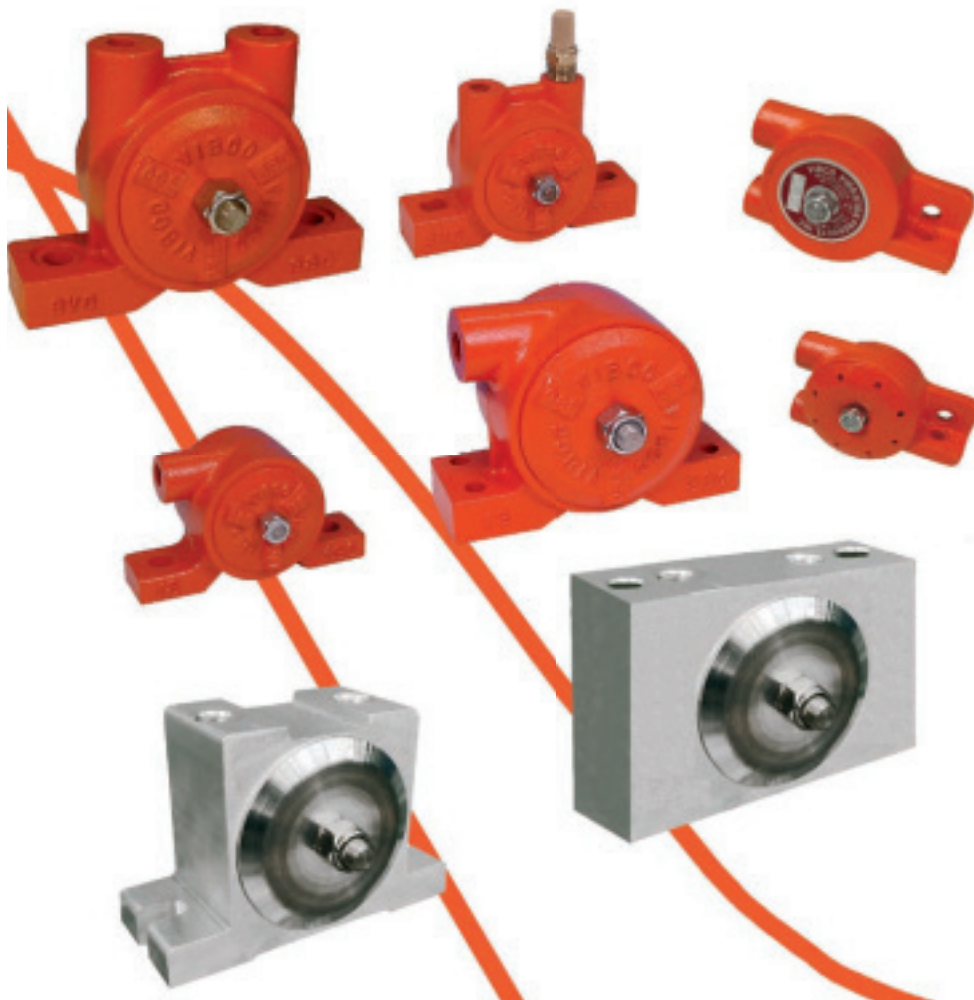




Pneumatic Turbine

Mounting Instructions • Operating Instructions • Technical Data
Parts List • Maintenance • Trouble Shooting



Thank you for choosing VIBCO, Inc. for your vibration needs. You are now the owner of the finest silent pneumatic vibrator available today backed by complete manufacturer confidence in its quality and dependability. For reference please complete the information below about your new VIBCO vibrator.

Model Number: _____

Date of Purchase: _____

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SAFETY INSTRUCTIONS



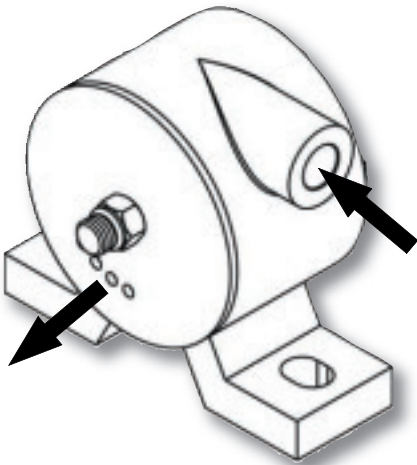
WARNING: Failure to read and follow these installation instructions and safety precautions could result in personal injury, equipment damage, shortened service life or unsatisfactory equipment performance. All information in this document is vital to the proper installation and operation of the equipment. It is important that all personnel who will be coming in contact with this product thoroughly read and understand this manual.

HOW IT WORKS

VIBCO turbine air vibrators are designed to keep noise pollution at a minimum. Compressed air turns a specially designed turbine wheel that channels the air through the unit at frequencies well above the human hearing range, making it virtually silent. Turbine vibrators average a whisper quiet 72 dB. The BBS, BVS, MLT and MLTSS models should use a muffler to remove exhaust air hiss. The VS model has a built-in muffler.

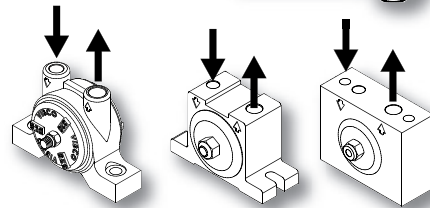
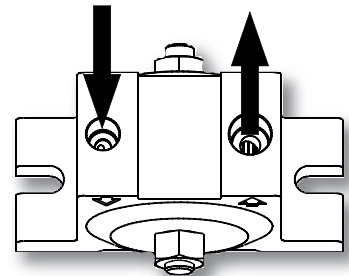
General Features

VIBCO turbine air vibrators operate in any position and are not adversely affected by dust, dirt or wetness. Speed can be adjusted by varying the air supply pressure. The only moving part is pre-lubricated for life and never needs oil, even for continuous duty.



NOTE:

On BVS, BBS, MLT & MHI models, the smaller **INNER** port is the air inlet and the larger **INNER** port is the exhaust.



Optional Features For MLT Models

- Metric Threads
- Special Coatings:
 - High gloss dairy white industrial enamel
 - Anodized or unpainted aluminum

Mounting Instructions Checklist

Warranty is void if vibrator is not properly installed. During installation follow and check off the following steps and your vibrator should provide you with years of trouble-free service.

- ☐ Determine the length of the channel iron.
- ☐ Select thickness of vibrator mounting plate and method of mounting.
- ☐ **STITCH** weld mounting plate to channel iron.
- ☐ Determine where vibrator should be placed on the bin.
- ☐ **STITCH** weld channel iron to bin.
- ☐ Place vibrator on mounting plate. It is important that you check the mounting plate for any warping. Secure vibrator firmly.
- ☐ Install safety chain or wire.
- ☐ Connecting pneumatics.
- ☐ Continuous vs. intermittent operation.
- ☐ **FILL OUT WARRANTY CARD!!!**



MOUNTING INSTRUCTIONS

If you have any questions consult the Mounting Instruction section of this manual or call VIBCO's Technical Support at **(800) 633-0032**.

Mounting Plate

For force up to 100 lbs. use a 1/4 in. thick plate, 100 to 500 lbs. use a 3/8 in. to 1/2 in. thick plate and over 500 lbs. use a 1/2 in. thick plate.(See Table).

CORRECT MOUNTING PLATES	
LBS. OF FORCE	PLATE THICKNESS
up to 100 lbs.	1/4" plate
100 to 500 lbs.	3/8" to 1/2" plate
over 500 lbs.	1/2" plate

Mounting Channel

Never place the vibrator directly onto the skin of the bin. It should be mounted to either a plate or a piece of channel iron that has been welded to the bin. The proper mounting method is to use either 3 in. or 4 in. channel iron. This will help to stiffen the structure to be vibrated as well as spread the vibration over a larger surface, increasing the overall efficiency and diminishing the possibilities of fatigue cracks in the bin material.

The length of the channel iron is determined by the thickness of the bin plate. For vibrators with a force up to 500 lbs. and a bin plate under 3/16" the 4 in. channel iron should extend 18 to 36 inches on both sides of the vibrator. For smaller vibrators with a force of up to 100 lbs. and a bin thickness of 3/16 in. to 1/4 in. the length of the 3 in. channel iron should extend 3 to 4 inches on both sides of the vibrator. For vibrators with a force between 100 and 500 lbs. and a bin thickness of 3/8 in. to 1/2 in. the length of the 3 in. or 4 in. channel iron should extend 6 to 8 inches on both sides of the vibrator. (See Table).

SUGGESTED CHANNEL LENGTH		
LBS. OF FORCE/BIN WALL WIDTH	CHANNEL IRON WIDTH	CHANNEL IRON LENGTH
up to 100 lbs / bin wall < 3/16" (<i>thin</i>)	3" channel iron	18" to 36" on both sides of vibrator
up to 500 lbs / bin wall = 3/16" to 1/4"	4" channel iron	3" to 4" on both sides of vibrator
over 500 lbs / bin wall = 3/8" to 1/2"	4" channel iron	6" to 8" on both sides of vibrator

Welding Mounting Plate to Channel Iron

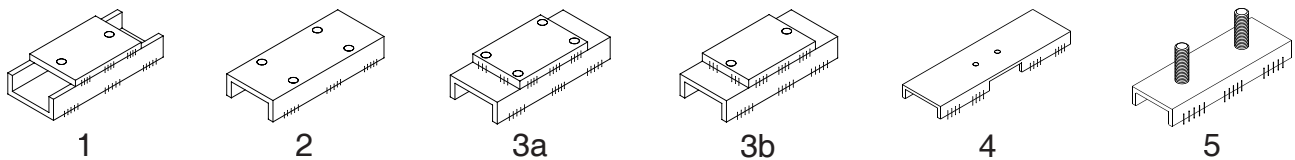
Weld the mounting plate to the middle of the channel iron. If the bin plate is 3/16 in. or less, weld the mounting plate to the back of the channel iron (see figure 3 or 4). If the bin plate is over 3/16 in. weld the mounting plate to the legs of the channel iron (see figure 1). Drill and tap holes or use studded plate (see figure 1). Make sure the mounting plate does not warp or distort. If this occurs, straighten, replace it or shim up vibrator.

Different Suggestions for Mounting the Channel

1. Mounting plate welded to legs of channel iron.
2. 3 in. or 4 in. channel iron with holes drilled thru and nuts welded on back side, or just holes drilled thru.
3. Add mounting plate and drill and tap holes thru.
4. Notch the channel for access to mounting bolts.
5. Weld studs to back of channel.



Always stop welds 1 in. from ends to prevent cracks.



NOTE: for a list of alternate and special application brackets, see pg. 35 of the VIBCO General Catalog.

Placement

For coarse materials the vibrator should be mounted approximately 1/3 of the distance from the discharge opening to the top of the sloped portion of the bin. For fine grain materials place the vibrator approximately 1/4 of the same distance (see different mounting suggestions on the following pages).

Welding Channel Iron To Bin

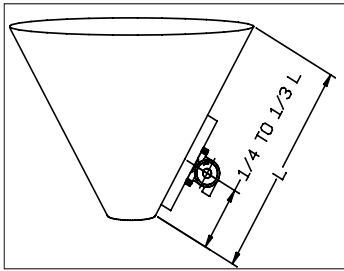
Where possible the mounting plate on the channel iron should be placed 1/3 to 1/4 of the distance from the discharge opening to the top of the sloped portion of the bin. Stitch weld channel iron in place, then weld intermittent welds 3 to 6" long with 3" between them along the entire length of the channel. Stop weld a minimum of 1" from the ends, it is important that you do not weld the ends of the channel iron. The heat concentration when welding the ends could cause the beginning of fatigue cracks.

Installing Safety Chain

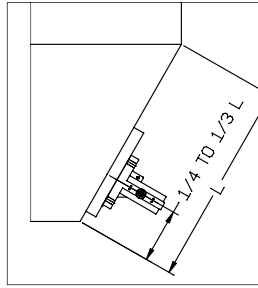
It is important to install a safety chain or wire in order to prevent the vibrator from falling and potentially causing injury if it comes loose from its mount.

Mounting Suggestions

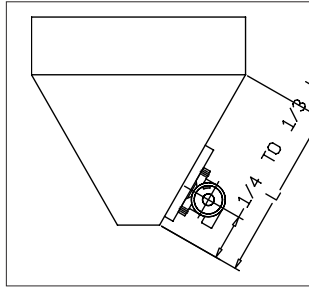
Conical Bin



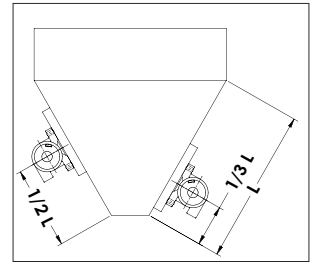
1/2 Rectangular Bin



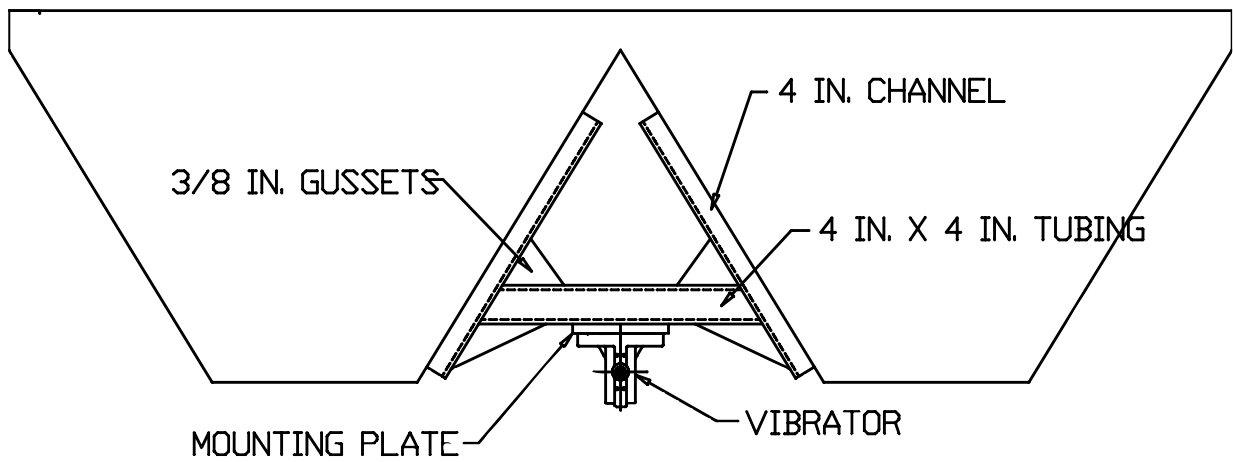
Rectangular Bin



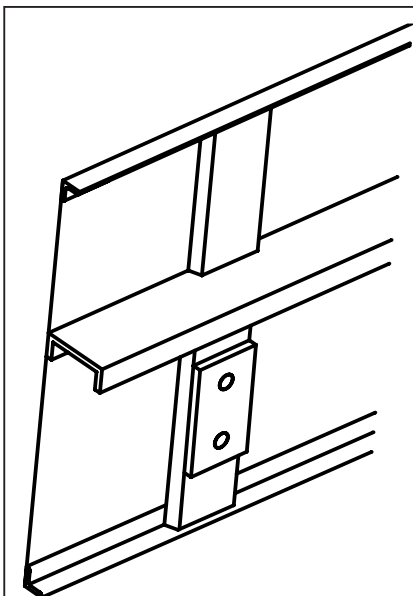
Two Vibrators On A Single Bin



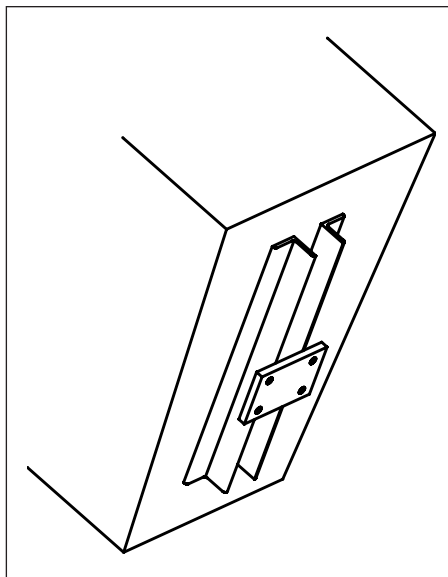
One Vibrator For A Double Bin



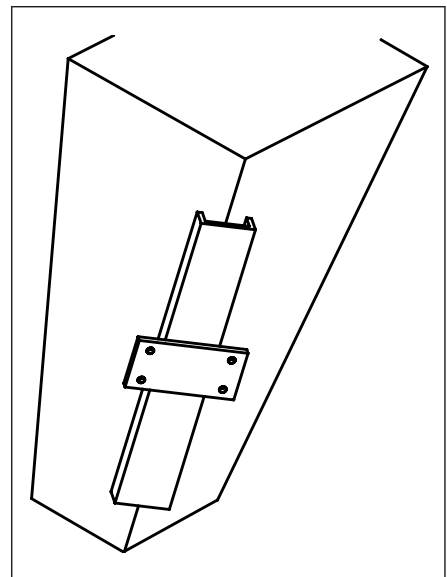
Bin With Stiffeners



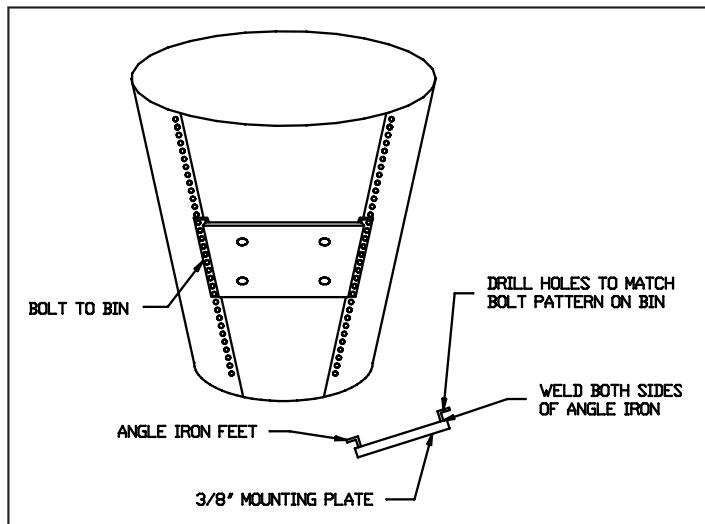
Angle Iron Stiffeners Instead of Channel Iron



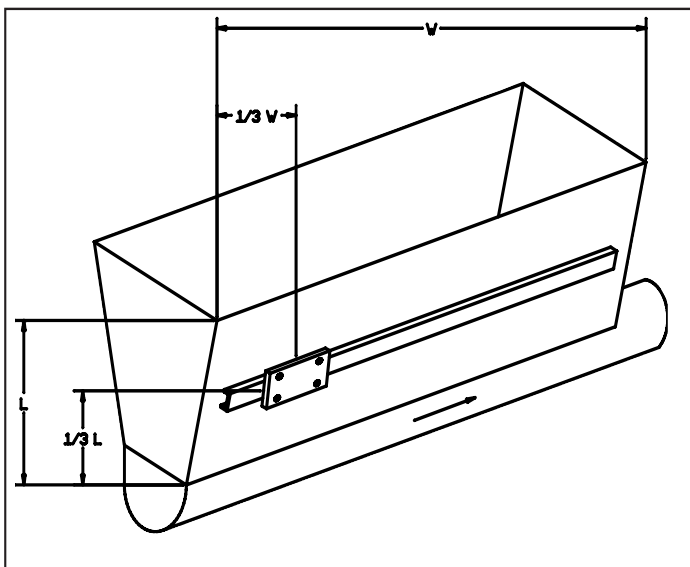
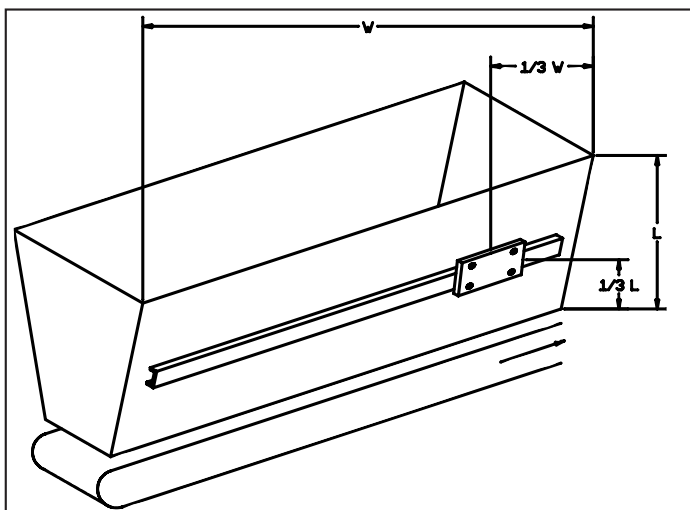
Thin Skinned Bin Corner Mount



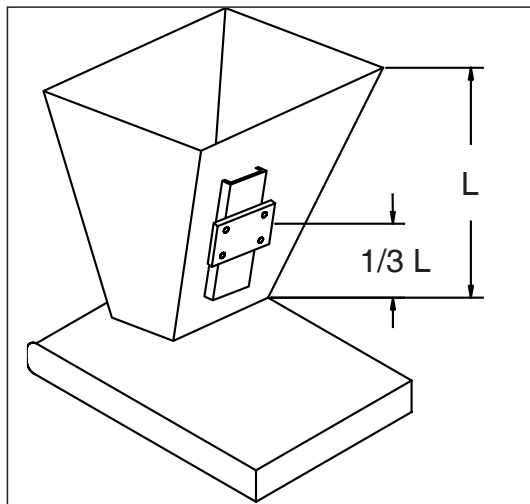
Sheet Metal Bin



Long Bin

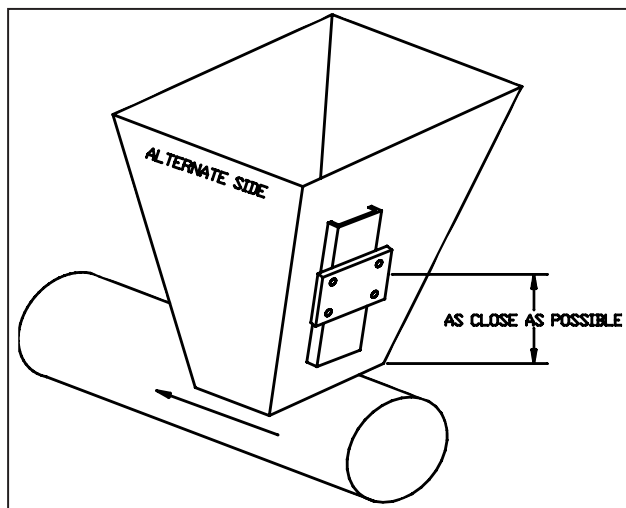


Belt Conveyor and Standard Bin



Belt Conveyors

Belt conveyor feeds from the front. Vibrator should be placed 1/3 from the front. If 2 vibrators are used, place 2nd one directly opposite 1/3 from the back. Do not operate back vibrator until bin is empty in front and the front vibrator has turned off. For more details consult Vibco.

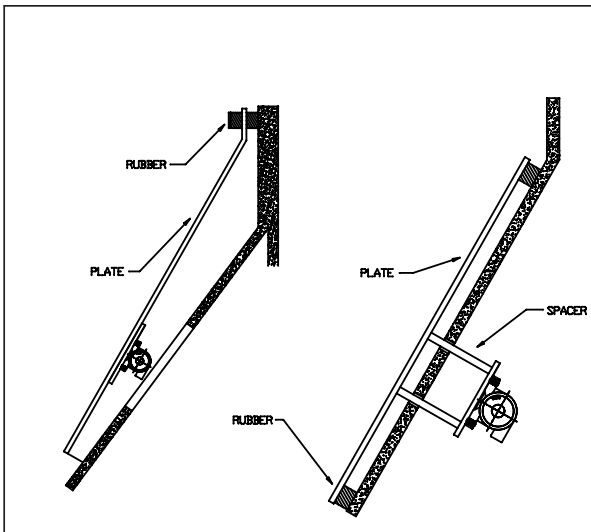
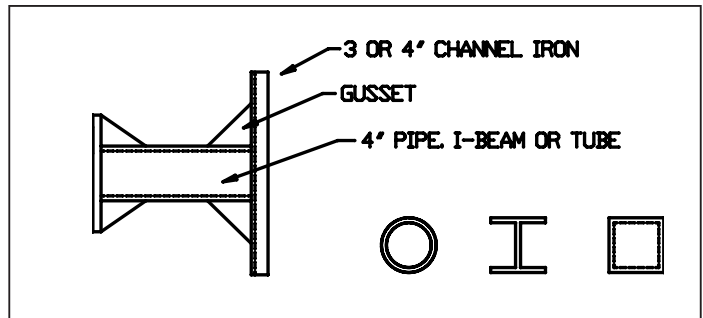
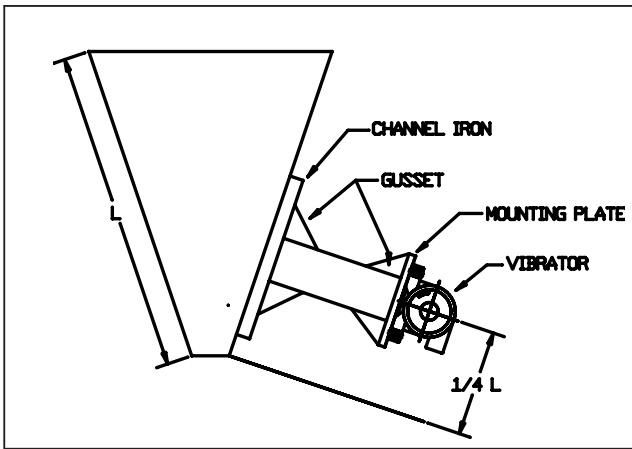
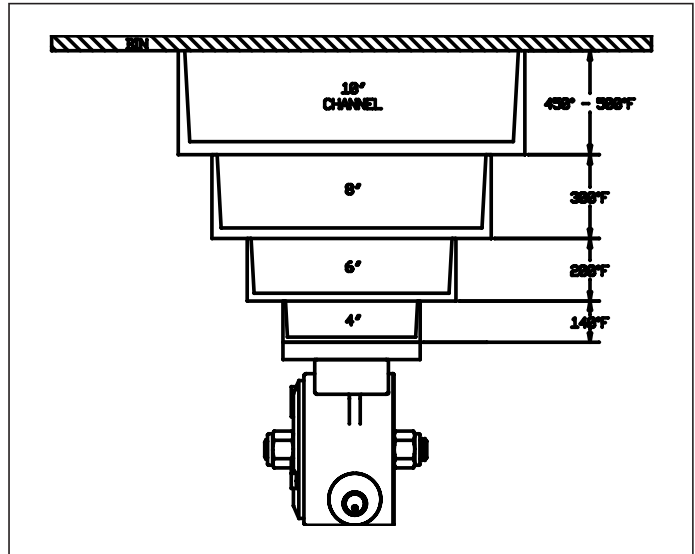
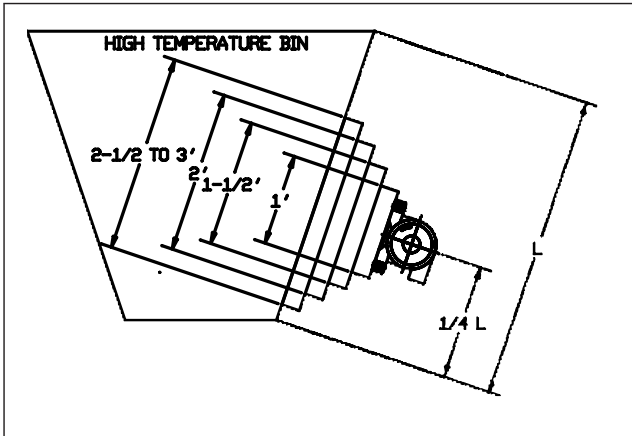


Screw Conveyors

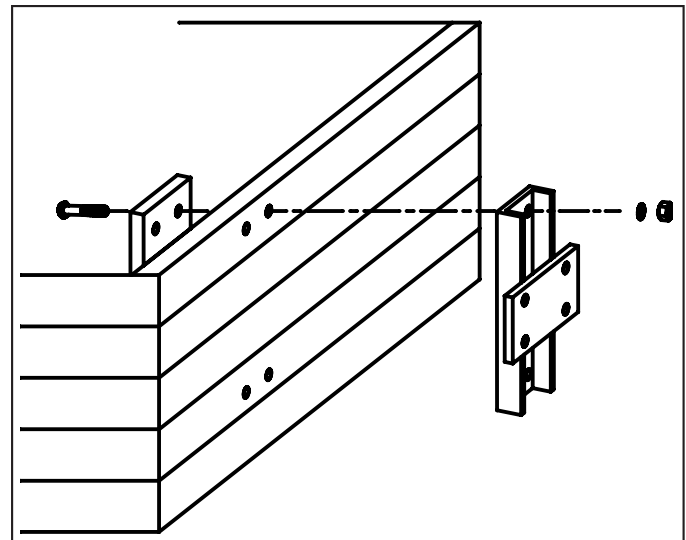
Feeds from back. Vibrator should be placed 1/3 from the back. If 2 vibrators are used, place 2nd one directly opposite 1/3 from the front. Do not operate front vibrator until bin is empty in back and the back vibrator has turned off. For more details consult Vibco.

Heat Mounts for Insulated Bins Containing High Temperature Materials

When materials in the bin have a temperature over 150°F, it is advisable to use a “heat” mount to prevent excessive heat from reaching the vibrator causing overload or bearing failure. Also ask for “high” temperature grease in vibrator bearing. Consult VIBCO for vibrator size.



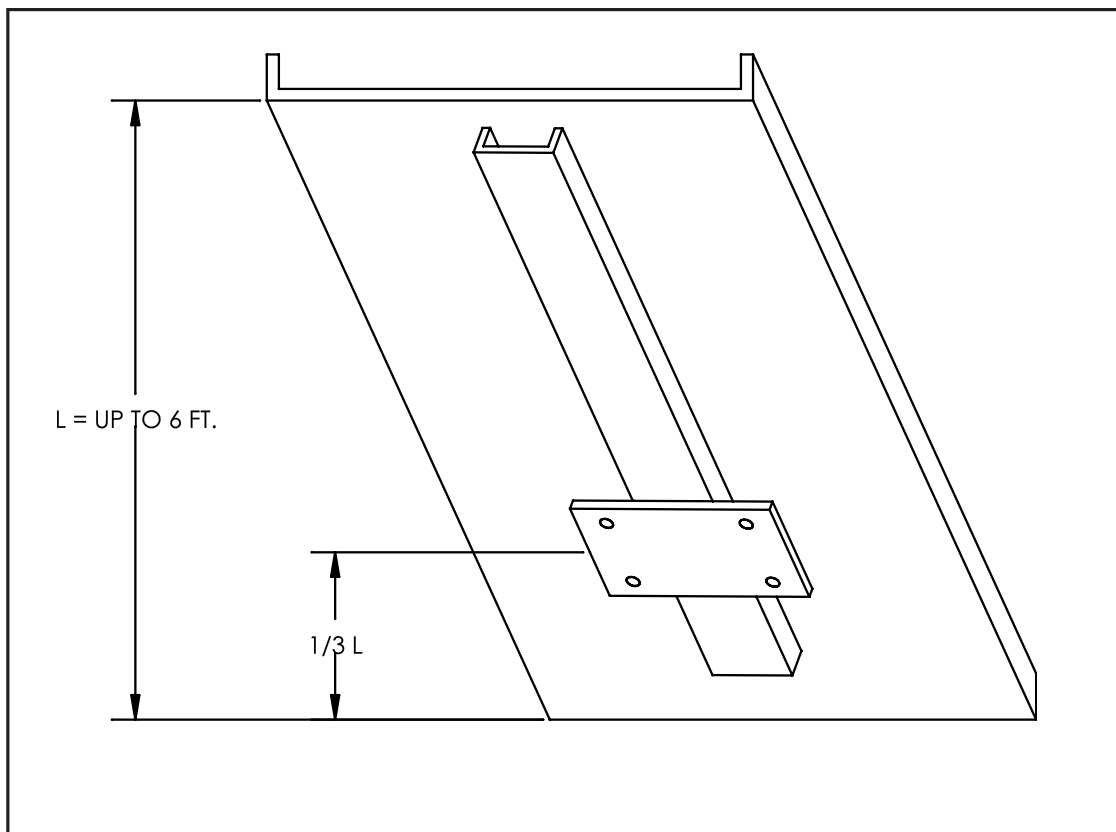
Mount steel plate on inside of bin so that the vibrator sits 1/3 up bin side. Isolate the plate from the concrete by using vibration shock absorbers. Consult VIBCO for detailed drawings.



Use steel plate on inside and bolt to outside mounting channel.

CHUTES

In order to successfully move material in a chute, the “angle of repose” of the material has to be known. It can be found in most handbooks or can easily be measured by pouring a cup of the material on a table. The angle between the table and the cone the material makes is the “angle of repose”. To move the material in the chute, it should be inclined no less than $1/2$ of the “angle of repose”. If this cannot be obtained, a feeder is necessary to move the material. (A) Chutes up to 6 ft. are generally handled by one vibrator mounted approximately $1/3$ from the discharge. (B) On chutes over 6 ft. long, two vibrators are needed, one should be placed $18/24$ ” from the discharge. The other approximately in the middle. Since chutes are very sensitive to vibration, provision should be made to move the lower vibrator 6 inches in either direction. This could mean the difference between moving the material or not moving it. (C) The direction of rotation of the vibrator shaft should be in the direction of material flow. (D) Force (impact) needed on vibrator is equal to weight of chute + vibrator + max material in chute. Chutes must have an inclination of at least 10° for vibrators to be able to move the material. If inclination is less the chute has to be made into a feeder. Contact VIBCO for selecting the proper size vibrator or ask for the bulletin covering chutes.



VIBRATOR INSTALLATION

Installation of the Vibrator

It is now time to put the VIBCO vibrator in place. Make sure that it is secured tightly. Retighten the bolts after the first 10 to 15 minutes of operation and check them periodically to maintain proper tightness (figures 1 and 2).



Damage to the bin and the vibrator can occur if not mounted securely.

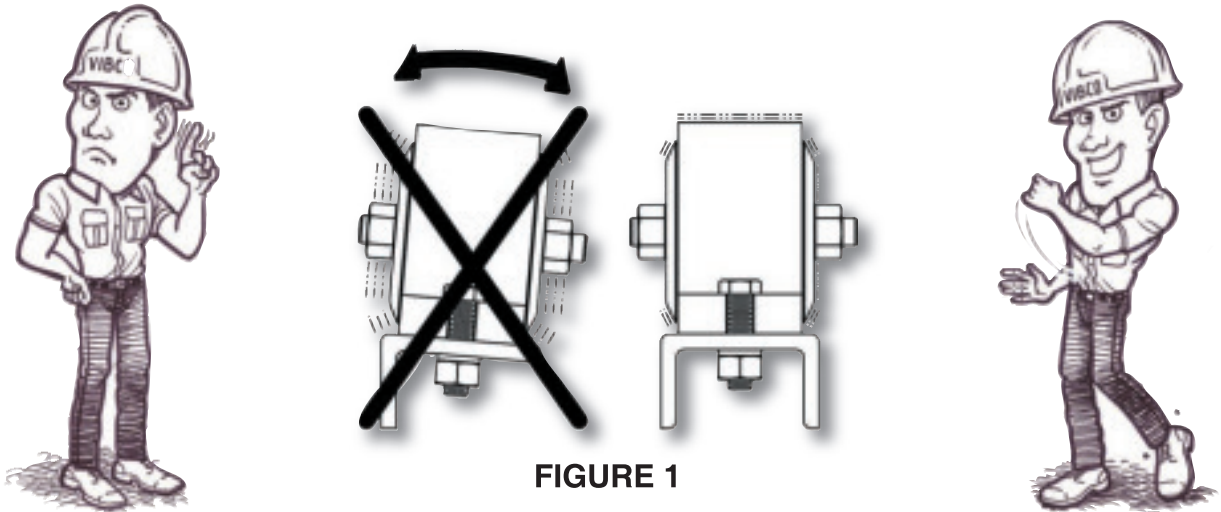


FIGURE 1

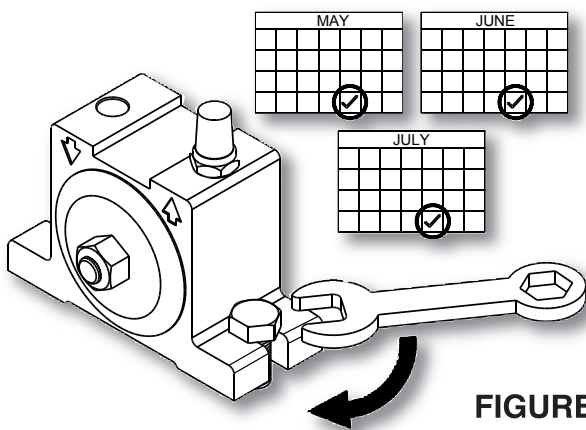


FIGURE 2

Remember:
Check those
bolts!



BOLT SIZE	TORQUE ft-lbs
1/4"	13
5/16"	25
3/8"	48
1/2"	115
5/8"	145
3/4"	260

Air Line To Vibrator

The hose to the inlet port of the vibrator should have the same or larger hose I.D. as the inlet I.D. (pipe size) of the vibrator, so that the pressure loss from the compressor to the vibrator is minimized.

TO DETERMINE CORRECT AIR HOSE SIZE**

TURBINE MODEL NUMBER	MIN AIR HOSE DIA	MIN FR* THREAD DIA	CFM
100 - 130	1/8"	1/4"	4 - 6
160 - 250	1/4"	1/4"	7 - 10
320 - 380	3/8"	3/8"	10 - 18
440 - 510	1/2"	1/2"	18 - 21
570	3/4"	3/4"	21 - 30

* F=filter R=regulator

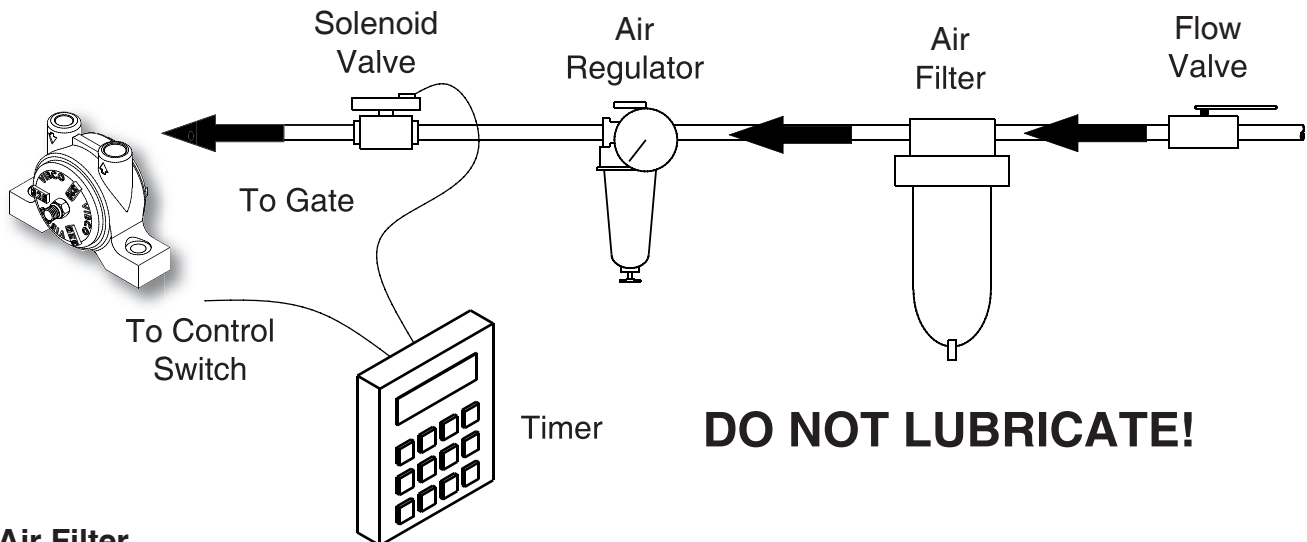
** these specs for installation of single unit;
for multiple units, adjust to maintain CFM

Flow Valve

A simple flow control valve is recommended to allow “tuning” the vibrator to the desired force necessary for solving your material flow problem. The air flow determines the force and frequency of the vibrator. By throttling the air flow, you can “find” the desired material discharge rate. You should watch for and avoid speeds (frequency) at which the binwall and the vibrator shake violently. An increase or decrease of air flow (assuming the mount is rigid) usually stops the excessive movement and will smooth out the operation.

Quick Opening Valves

These are recommended between the air regulator and the vibrator so that the air enters the vibrator at full starting force even at low regulator valve settings. The only requirement is that you install the air regulator at least 12 inches away from the quick opening valve so that the air pressure between the two valves will build up enough to yield the necessary starting force. Solenoid (quick opening) valves are suggested for automatic operations. Automatic Timed Cycling is programmed with the timer usually directly connected to the bin or hopper gate switch. When the gate is opened the timed cycling system is activated.



Air Filter

It is recommended that you use an air filter in the line. Clean air will prolong the life of any pneumatic vibrator. Dirty or moist air will harm the unit and impair it from operating at maximum efficiency and lowest air consumption.

Maximum Air Pressure

The operating pressure of the vibrator should not exceed 80 psi and should be no lower than 60 psi unless specially constructed by VIBCO. Max air pressure for BVS-60, VS, BBS and FBS-100 should be 60 psi (Figure 3).

Maximum Temperature

The operating temperature of the vibrator should not exceed 200°F (93°C). High temperature units are available (Figure 4).

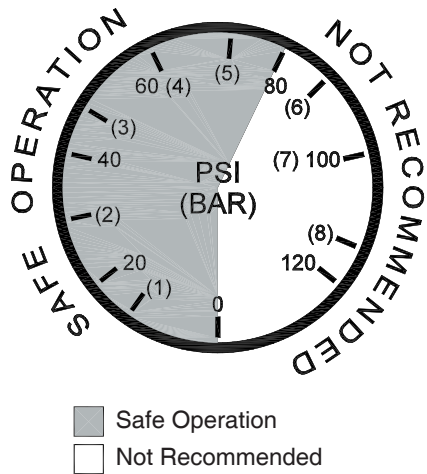


FIGURE 3

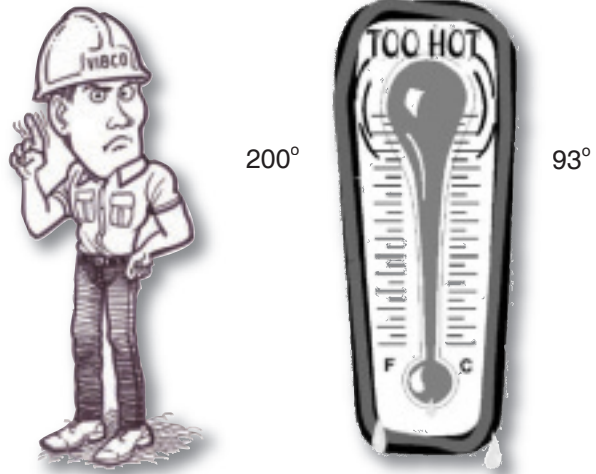


FIGURE 4

Operating Instructions

To Obtain Maximum Performance

It is not necessary to operate the vibrator at its maximum capacity to obtain maximum performance. Air regulators, timers, etc. should be used to tune the vibrator for optimum performance and ensure longer life.

Continuous vs. Intermittent Operation

For bulk material bin applications, the vibrator should be used to reduce the material friction and increase flow, not as a feeder. Once the friction of the particles is reduced, gravity flow takes over and the vibrator should then be turned off for several reasons:

Economy. Most vibrators are run 60% to 80% longer than they should. Short bursts of vibration are usually more effective than operating continuously. Experience has shown that for most applications, short bursts of 10 to 30 seconds for every 1 to 5 minutes of discharge are more effective and efficient.

Life of the Unit. The life of the vibrator will be determined by the length of operation and the cleanliness of the air supply.

Guaranteed Success of the Application. The vibrator can only furnish material to the discharge area. If more is furnished than conveyed, the remaining material will pack inside the bin. We suggest the vibrators only run when the bin gates or doors are open, or when material flow is needed.

Maintenance

VIBCO turbine vibrators function without maintenance. They require no lubrication in the air line. It is advisable to put an air-cleaner in the line to prevent dust and dirt from going through the unit and clogging the muffler. All models are easily repairable. Remove both nuts, press the shaft out of the bearings and turbine. Use Andok C or Unirex N2 (by Exxon) or equal type of grease. When reassembling be sure the turbine wheel is put back so that the incoming air will hit the pocket of the tooth, not the back of the tooth.

Troubleshooting

The Vibrator Won't Start!

1. Check for dirt in the airline OR inlet opening
2. Check for dirt or debris clogging the exhaust muff
3. Double check the size of your air line - is it large enough to give you the correct cubic feet per minute (CFM) and correct air pressure (minimum required = 20 PSI)?
4. Did you mount the air regulator far enough away from the quick acting valve for the right amount of air pressure to build up?

NOTE: Bearings may require a short "break-in" period to run at optimum VPM stated in the catalog

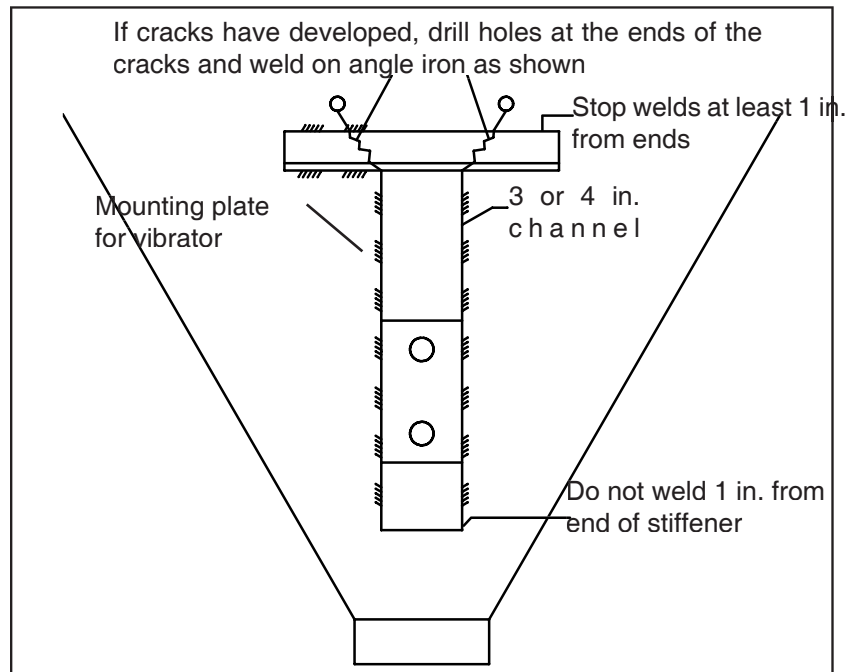
If required, all models are easily repairable. The ball bearings can easily be changed by any maintenance mechanic by removing the two end covers and pressing out the damaged bearings from the turbine wheel. Remove both nuts, press the shaft out of the bearings and turbine. Note: Use Andok C or Unirex N2 (by Exxon) or equal type of grease. When reassembling be sure the turbine wheel is put back so that the incoming air will hit the pocket of the tooth, not the back of the tooth.

When new, the turbine vibrator might be slow in starting due to:

- A. The bearings being packed with grease. Excess grease will be thrown out of the bearing after a short operating time.
- B. Temperature might be low causing the grease to be stiff. After a short operating time the grease will warm and begin to loosen.
- C. Bearing seals are stiff when new or cold. A brief run time will wear them in.

Sudden loss of vibration:

- A. Loss of vibration could be caused by a cracked weld or a crack in the bin. Vibration will not travel through a crack. Follow the instructions below on how to fix the problem.



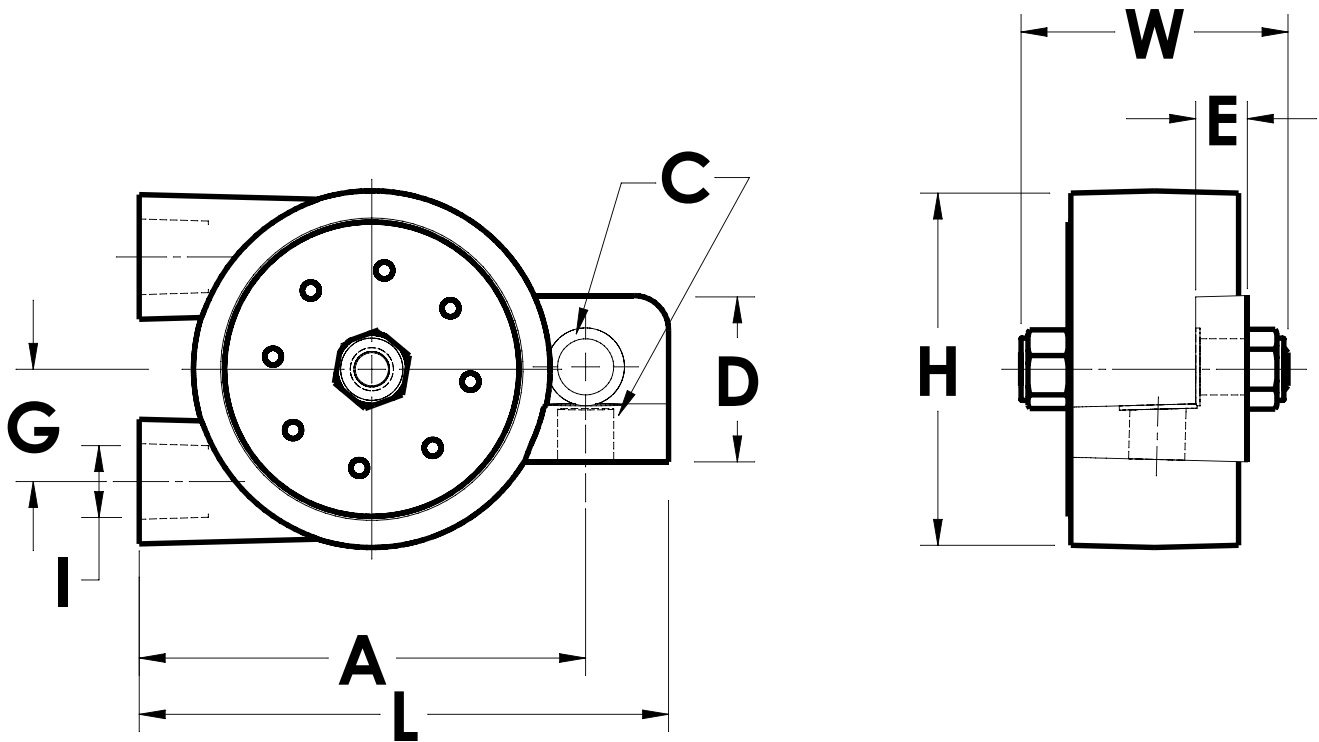
The improper welding of bin stiffeners, to which the vibrator is attached, often results in fatigue cracks in the bin. This can be prevented by properly welding stiffeners to the bin side. A stiffener should be stitch welded to the bin leaving 3 to 4 inches between welds. STOP WELDS 1 IN. FROM THE ENDS OF THE STIFFENER. This will prevent fatigue cracks that occur due to crystallization of the material. This crystallization is caused by the heat concentration that develops when the ends of the channel iron are welded. To stop the cracks, drill a hole at the end of each crack and weld on a piece of angle iron as shown above. When welding on the angle iron STOP WELDS 1 IN. FROM THE ENDS.

BBS and FBS Technical Data

Model	A		C **		L		W		H		D		E		G		I *
	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Air Inlet
BBS-100	2 5/8	67	5/16	8	3 1/4	83	1 5/8	41	2	51	1	25	5/16	8	9/16	14	1/8-NPT
FBS-100																	
BBS-130	3 3/16	81	3/8	10	3 3/4	95	1 7/8	48	2 1/4	57	1 3/16	30	5/16	8	5/8	16	1/4-NPT
FBS-130																	
BBS-160 & 190	3 9/16	90	3/8	10	4 1/8	105	2	51	2 9/16	65	1 1/4	32	5/16	8	3/4	19	1/4-NPT
FBS-160 & 190																	

* NPT Pipe Tap Size

** Bolt Size

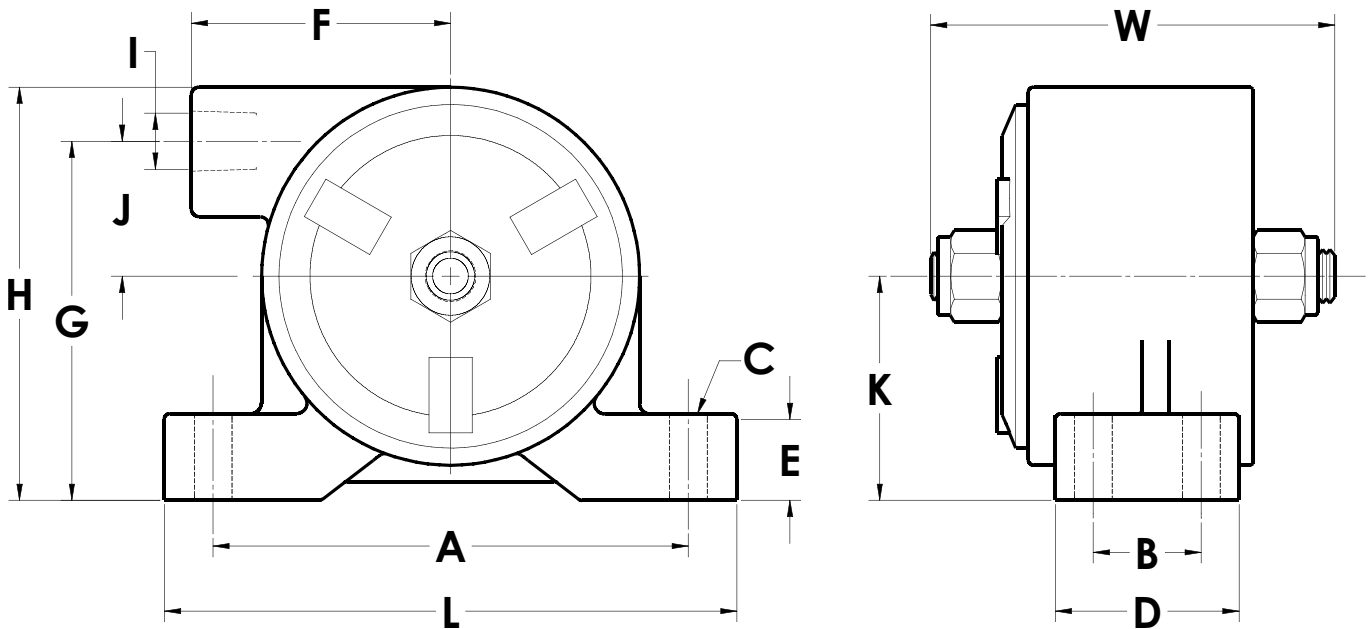


Model	Weight		60 psi		80 psi				dB	Max. lbs. Material in Bin
	oz.	kg	Speed VPM	CFM	Speed VPM	CFM	Force (lbs.)	Force (N)		
BBS-100	5	.142	12000	3.5			20	89	66	200
BBS-130	9	.255	8000	4.5	10500	5.5	75	334	67	750
BBS-160	12	.340	5500	5	9000	7	160	712	67	1600
BBS-190	15	.425	8500	5	10000	7	250	1112	70	2500
FBS-100	10.5	.298	15000	5			30	133	66	For Match-Plates
FBS-130	16	.454	13000	6	15000	7	150	667	68	For Match-Plates
FBS-160	24	.680	10500	6	13000	7	225	1001	68	For Match-Plates
FBS-190	26	.737	8500	6	10000	8	250	1112	70	For Match-Plates

VS Technical Data

Model	A		B		C **		L		W		H		D	
	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm
VS-100	3	76	-	-	1/4	6	3 7/8	98	1 7/8	48	2	51	3/4	19
VS-130	4	102	-	-	3/8	10	4 7/8	124	2	51	2 5/16	59	15/16	24
VS-160	4	102	-	-	3/8	10	5 1/8	130	2 7/8	73	3	76	1 7/16	37
VS-190	4	102	-	-	3/8	10	5 7/16	138	3 1/4	83	3 1/16	78	1 5/16	33
VS-250	4	102	-	-	1/2	13	5 1/2	140	3 5/8	92	3 11/16	94	1 1/2	38
VS-320	4	102	-	-	1/2	13	5 1/2	140	4	102	4 3/4	121	1 3/4	44
VS-380	5 1/2	140	1 1/4	32	3/8	10	6 7/8	175	4 3/4	121	4 7/8	124	2 1/4	57
VS-510	5 1/2	140	1 3/4	44	3/8	10	6 15/16	176	4 3/4	121	5 3/8	137	2 3/4	70

* NPT Pipe Tap Size		** Bolt Size								
E	F	G	I *	J	K					
Inch	mm	Inch	mm	Air Inlet	Inch	mm				
3/8	10	1 5/16	33	1 11/16	43	1/8-NPT	5/8	16	1	25
3/8	10	1 1/2	38	1 15/16	49	1/8-NPT	3/4	19	1 1/4	32
11/16	17	1 7/8	48	2 7/16	62	1/4-NPT	7/8	22	1 5/8	41
5/8	16	2 1/8	54	2 1/2	64	1/4-NPT	7/8	22	1 3/4	44
9/16	14	2 1/4	57	3	76	1/4-NPT	1 1/8	29	1 7/8	48
13/16	21	2 1/4	57	4 1/8	105	3/8-NPT	1 1/4	32	2 3/4	70
1	25	2 7/8	73	4	102	3/8-NPT	1 1/2	38	2 1/2	64
1	25	3 1/4	83	4 3/4	121	1/2-NPT	1 3/4	44	2 7/8	73



Model	Weight		60 psi		80 psi					Max. lbs. Material in Bin
	lbs.	kg	Speed VPM	CFM	Speed VPM	CFM	Force (lbs.)	Force (N)	dB	
VS-100	7/13 oz.	.198/.368	12000	4			20	89	66	200
VS-130	11/21 oz.	.312/.595	8000	4.5	10500	5.5	75	334	67	750
VS-160	3	1.4	10000	7	12000	8	160	712	70	1600
VS-190	3.5	1.6	4200	7.5	7200	9	270	1201	70	5000
VS-250	5	2.3	5500	9	7200	10.5	500	2225	70	5000
VS-320	6.5	2.9	5200	9	6800	11	600	2669	69	7000
VS-380	11.5	5.2	4600	16	5200	17	725	3226	72	7250
VS-510	15	6.8	4000	18	4500	21	900	4004	77	9000

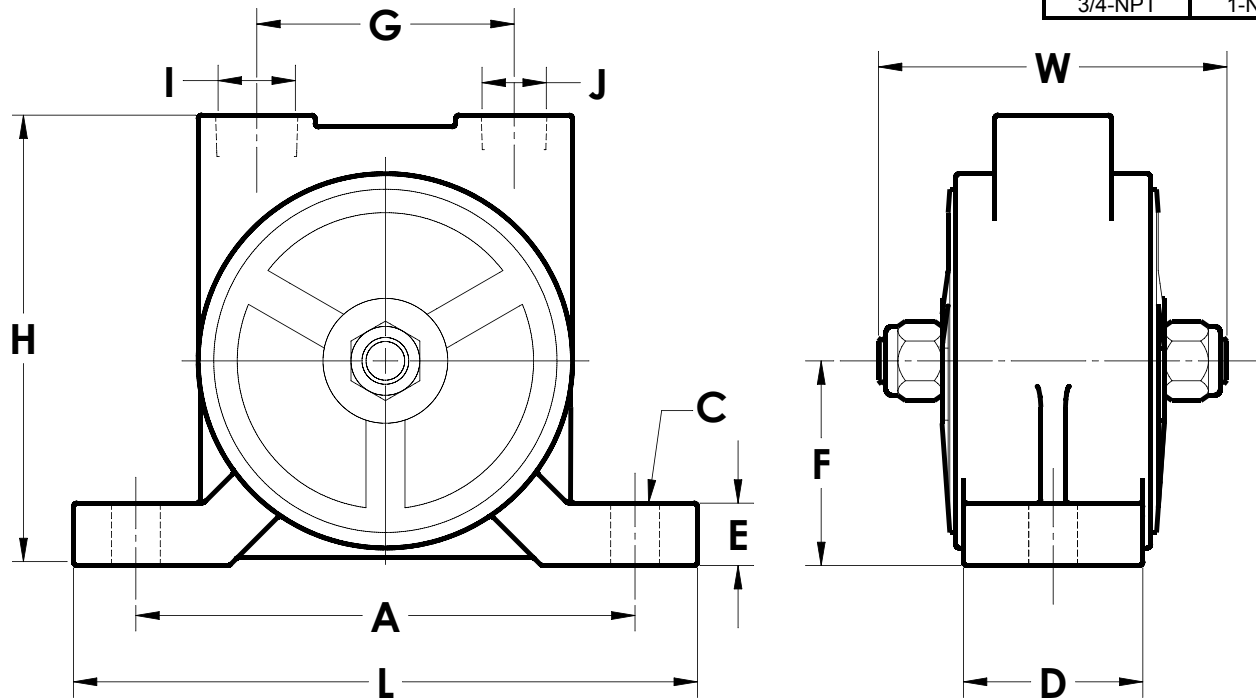
BVS Technical Data

Model	A		C**		L		W		H		D		E		F		G	
	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm
BVS-60	3	76	1/4	6	3 13/16	97	1 5/8	41	2 7/16	62	3/4	19	5/8	16	1 3/16	30	1 1/4	32
BVS-130	4	102	3/8	10	4 7/8	124	1 7/8	48	2 5/8	67	7/8	22	5/8	16	1 1/4	32	1 7/16	37
BVS-160	4	102	3/8	10	5 1/2	140	2 7/8	73	3 5/8	92	1 3/8	35	9/16	14	1 11/16	43	1 7/8	48
BVS-190	4	102	3/8	10	5 1/4	133	3 3/16	81	3 7/16	87	1 5/16	33	7/8	22	1 9/16	40	1 7/8	48
BVS-250	5	127	1/2	13	6 3/4	171	3 9/16	90	3 15/16	100	1 5/8	41	7/8	22	1 7/8	48	2 5/16	59
BVS-320	5	127	1/2	13	6 3/4	171	4	102	4 7/8	124	1 5/8	41	1 1/8	29	2 1/4	57	2 3/4	70
BVS-380	6	152	5/8	16	7 15/16	202	4 3/4	121	5 13/16	148	2	51	1 1/8	29	2 11/16	68	3	76
BVS-440	7	178	5/8	16	8 15/16	227	4 3/4	121	5 3/4	146	2 3/16	56	1 3/16	30	2 7/16	62	3 7/16	87
BVS-510	7	178	5/8	16	8 15/16	227	4 3/4	121	5 3/4	146	2 1/4	57	1 1/4	32	2 9/16	65	3 7/16	87
BVS-570	8	203	3/4	19	10 3/16	259	5 7/16	138	7 1/4	184	2 15/16	75	1	25	3 1/8	79	4	102

* NPT Pipe Tap Size

** Bolt Size

I *	J *
Inlet	Outlet
1/8-NPT	1/8-NPT
1/8-NPT	1/4-NPT
1/4-NPT	3/8-NPT
1/4-NPT	3/8-NPT
1/4-NPT	3/8-NPT
3/8-NPT	1/2-NPT
3/8-NPT	1/2-NPT
1/2-NPT	3/4-NPT
1/2-NPT	3/4-NPT
3/4-NPT	1-NPT



Model	Weight		60 psi		80 psi				Max. lbs. Material in Bin	
	lbs.	kg	Speed VPM	CFM	Speed VPM	CFM	Force (lbs.)	Force (N)		dB
BVS-60	7/13 oz.	.198/.368	12000	4			20	89	66	200
BVS-130	10/20 oz.	.283/.567	8000	4.5	10500	5.5	75	334	67	750
BVS-160	3	1.4	9500	7	11000	8	160	712	70	1600
BVS-190	3.5	1.6	5500	7.5	7200	8.5	270	1201	71	2700
BVS-250	6	2.7	5200	8	7200	9	480	2136	72	4800
BVS-320	8.5	3.9	5500	9	6800	10	600	2669	70	5300
BVS-380	13	5.8	4500	16	5000	18	670	2981	74	6700
BVS-440	16	7.3	4300	18	4800	21	700	3114	76	7000
BVS-510	16	7.3	4000	18	4500	21	900	4004	77	9000
BVS-570	23	10.4	3600	21	4000	26	1050	4671	83	10500

MLT and MLTSS Technical Data

Model	A		C**		L		W		H		D		E		F		G		I*	J*
	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inlet	Outlet
MLT/MHI-130	2 3/4	70	1/4	6	3 1/2	89	1 7/8	48	2 1/2	64	1	25	1/2	13	1 1/8	29	1 7/16	37	1/8-NPT	1/4-NPT
MLT/MHI-190	3 1/2	89	3/8	10	4 1/2	114	3 3/8	86	3 3/16	81	1 13/16	46	5/8	16	1 1/2	38	1 15/16	49	1/4-NPT	3/8-NPT
MLT/MHI-250	4	102	3/8	10	5	127	3 3/8	89	3 3/8	86	2	51	5/8	16	1 11/16	43	2 1/4	57	1/4-NPT	3/8-NPT
MLT/MHI-320	5	127	1/2	13	6 3/8	162	4	102	4 1/4	108	2	51	13/16	21	2 1/16	52	2 13/16	71	3/8-NPT	1/2-NPT

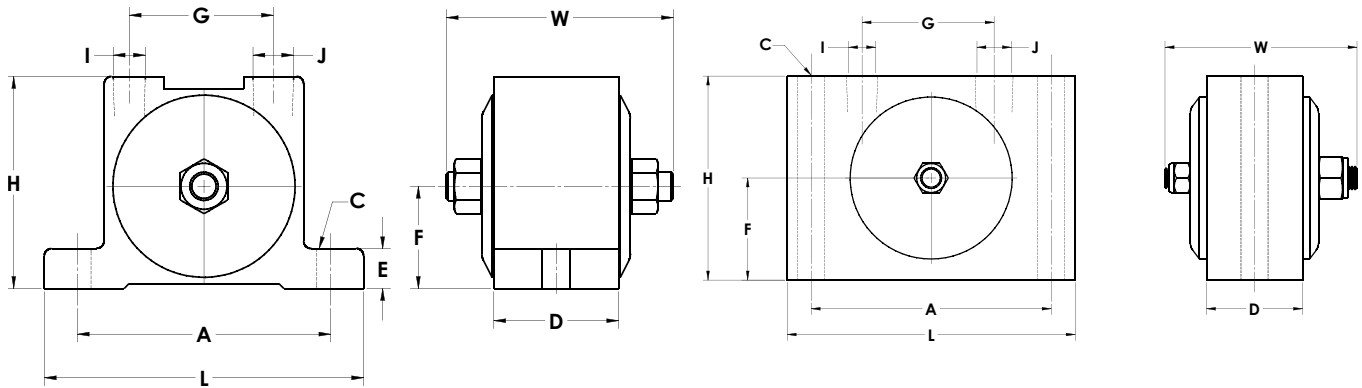
* NPT Pipe Tap Size

**Bolt Size

Model	A		C**		L		W		H		D		E		F		G		I*	J*
	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inlet	Outlet
MLTSS/MHISS-130	2 3/4	70	1/4	6	3 1/2	89	1 7/8	48	2 3/8	64	1	25	1/2	13	1 3/16	29	1 7/16	37	1/8-NPT	1/4-NPT
MLTSS/MHISS-190	3 1/2	89	3/8	10	4 1/2	114	3 3/8	86	3 1/2	81	1 13/16	46	5/8	16	1 3/4	38	1 15/16	49	1/4-NPT	3/8-NPT
MLTSS/MHISS-320	5	127	1/2	13	6	152	4	102	4 1/4	108	2	51	13/16	21	2 1/8	52	2 13/16	71	3/8-NPT	1/2-NPT

* NPT Pipe Tap Size

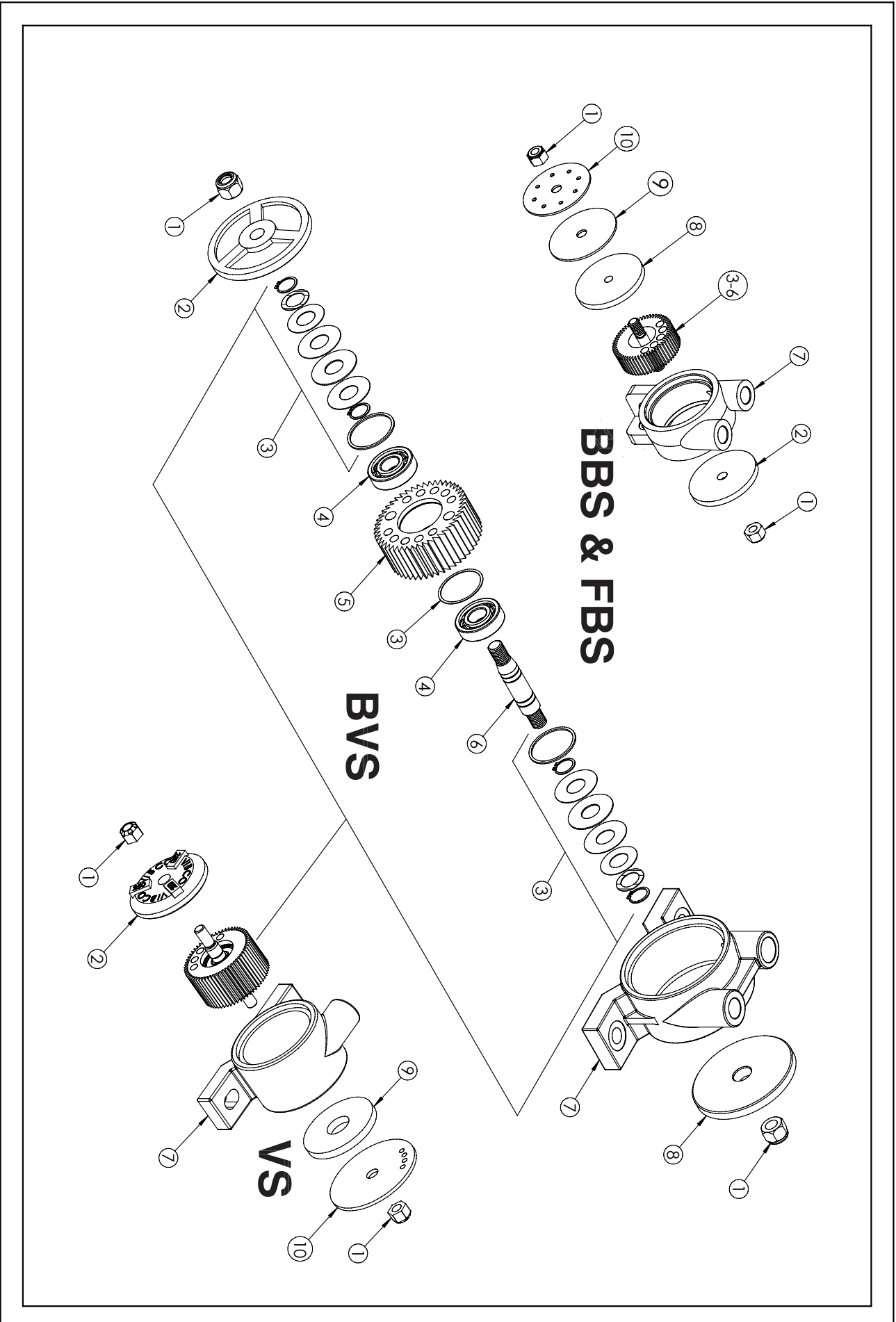
**Bolt Size



Model	Weight		60 psi		80 psi					Max. lbs.
	lbs.	kg	Speed VPM	CFM	Speed VPM	CFM	Force (lbs.)	Force (N)	dB	Material in Bin
MLT-130	1	.45	8600	4.5	10500	5.5	75	334	68	750
MLT-190	2	.91	5500	7.5	7200	8.5	270	1200	71	2700
MLT-250	2.4	1.08	5200	8	7200	9	480	2136	72	4800
MLT-320	4.5	2.04	5500	9	6800	10	600	2669	70	5300

Model	Weight		60 psi		80 psi					Max. lbs.
	lbs.	kg	Speed VPM	CFM	Speed VPM	CFM	Force (lbs.)	Force (N)	dB	Material in Bin
MLTSS-130	2	.9	8600	4.5	10500	5.5	75	334	68	750
MLTSS-190	7	3.2	5500	7.5	7200	8.5	270	1200	71	2700
MLTSS-320	13	6.0	5500	9	6800	10	600	2669	70	5300

Model	Weight		60 psi		Force (lbs.)		Force (N)		80 psi		dB	Max. lbs.
	lbs.	kg	Speed VPM	CFM	Speed VPM	CFM	Force (lbs.)	Force (N)				
MHI-130	1	.45	8000	4.5	200	890	21000	5.5	300	300	68	750
MHISS-130	2	.9										
MHI-190	2	.91	5500	7.5	335	1490	10500	8.5	575	575	71	2700
MHISS-190	7	3.2										
MHI-250	2.4	1.08	5200	8	510	2270	10200	9	965	4290	72	4800
MHI-320	4.5	2.04	5500	9	675	3000	10000	10	1300	5780	70	5300
MHISS-320	13	6.0										

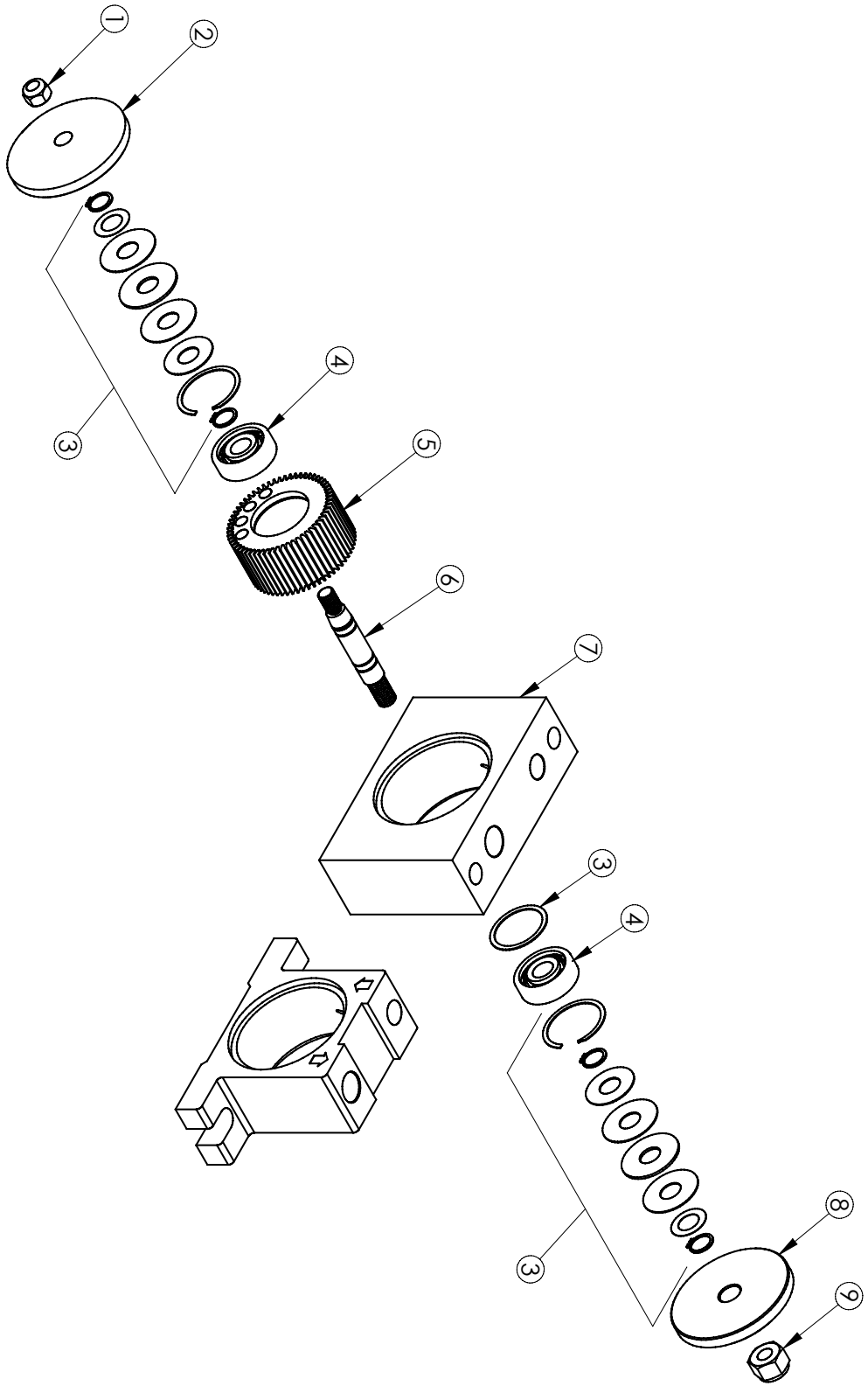


PNEUMATIC TURBINE VIBRATOR SPARE PARTS LIST

MODEL	Locknuts	Threaded or Tapered Cover	Washer Kit*	Bearing	Turbine Wheel	Shaft	Housing	Reamed Cover	Muffler Pad	Exhaust Cover	Repair Kit**
	1	2	3	4	5	6	7	8	9	10	
VS-100	5/16-18LN	100BBS04-2	WASH-01	608LLB-C3	100BBS03-1	160BBS12-2	100V/S03		100V/S01-11	100BBS23-3	RK-VS-100
VS-130	5/16-18LN	100BBS04-2	WASH-02	608LLB-C3	130BBS03-1	160BBS12-3	130V/S02		130V/S01-11	100BBS23-2	RK-VS-130
VS-160	3/8-16LN	160BVS07-2	WASH-57	608LLB-C3	160BVS05	160BVS04	160V/S03		190V/S05	190V/S04	RK-160
VS-190	3/8-16LN	190BVS08-2	WASH-05	6201LLB-C3	190BVS17	190BVS16	190V/S14-2		190V/S05	190V/S04	RK-190
VS-250	7/16-14LN	250BVS08-2	WASH-05	6201LLB-C3	250BVS22	250BVS21	250V/S19		250V/S17	250V/S03	RK-250
VS-320	7/16-14LN	320BVS20	WASH-06	6302LLB-C3	320BVS16	320BVS15	320V/S07		320V/S06	320V/S10	RK-320
VS-380	9/16 & 5/8 LN	380BVS23	WASH-07	6303LLB-C3	380BVS30	380BVS29	410V/S13		410V/S04	410V/S05	RK-380
VS-510	9/16 & 5/8 SN	510BVS16-2	WASH-09	6303LLB-C3	200C11	510BVS25	510V/S03		510BVS23	510V/S02	RK-510
BVS-60	5/16-18LN	100BBS04-2	WASH-01	608LLB-C3	100BBS03-1	160BBS12-1	60BVS02	100BBS04-1			RK-BVS-60
BVS-130	5/16-18LN	130BBS04-2	WASH-02	608LLB-C3	130BBS03-1	160BBS12-2	130BVS02	130BBS04-1			RK-BVS-130
BVS-160	3/8-16LN	160BVS07-2	WASH-57	608LLB-C3	160BVS05	160BVS04	160BVS07-1	160BVS07-1			RK-160
BVS-190	3/8-16LN	190BVS08-2	WASH-05	6201LLB-C3	190BVS17	190BVS16	190BVS18-2	190BVS08-1			RK-190
BVS-250	7/16-14LN	250BVS08-2	WASH-05	6201LLB-C3	250BVS22	250BVS21	250BVS23	250BVS08-1			RK-250
BVS-320	7/16 & 1/2 LN	320BVS20	WASH-06	6302LLB-C3	320BVS15	320BVS15	320BVS17-2	320BVS09-1			RK-320
BVS-380	9/16 & 5/8 LN	380BVS23	WASH-07	6303LLB-C3	380BVS30	380BVS29	380BVS32	380BVS10-1			RK-380
BVS-440	9/16 & 5/8 LN	510BVS16-1	WASH-09	6303LLB-C3	200C11	510BVS25	510BVS03	510BVS05-1			RK-440
BVS-510	9/16 & 5/8 LN	510BVS16-2	WASH-09	6303LLB-C3	200C11	510BVS25	510BVS03	510BVS05-2			RK-510
BVS-510F	9/16 & 5/8 LN	510BVS16-2	WASH-09	6303LLB-C3	200C11	510BVS25	510BVS12	510BVS05-2			RK-510F
BVS-510FS	9/16 & 5/8 LN	510BVS16-2	WASH-12	6303LLB-C3	200C11	510BVS25	510BVS12	510BVS32	510BVS23	320V/S10	RK-510FS
BVS-570	3/4-10LN	570BVS11	WASH-10	6305LLB-C3	500C26	570BVS16	570BVS03	570BVS05-1			RK-570
BBS-100	5/16-18LN	100BBS04-2	WASH-01	608LLB-C3	100BBS03-1	160BBS12-1	100BBS05	100BBS04-1			RK-BBS-100
BBS-130	5/16-18LN	130BBS04-2	WASH-02	608LLB-C3	130BBS03-1	160BBS12-2	130BBS06	130BBS04-1			RK-BBS-130
BBS-160	5/16-18LN	160BBS04-2	WASH-04	608LLB-C3	160BBS03-1	160BBS12-3	160BBS05	160BBS04-1			RK-BBS-160
BBS-190	5/16-18LN	160BBS04-2	WASH-04	6201LLB-C3	160BBS03-1	160BBS12-3	160BBS05	160BBS04-1			RK-BBS-190
FBS-100	5/16-18LN	100BBS04-2	WASH-01	608LLB-C3	100BBS03-1	160BBS12-1	100BBS05-2	100BBS04-1	100BBS20-12	100BBS23-3	RK-FBS-100
FBS-130	5/16-18LN	130BBS04-2	WASH-02	608LLB-C3	100BBS03-2	160BBS12-2	130BBS-6-2	130BBS04-1	100BBS10-9	100BBS23-2	RK-FBS-130
FBS-160	5/16-18LN	160BBS04-2	WASH-04	608LLB-C3	160BBS03-2	160BBS12-3	160BBS05-2	160BBS04-1	100BBS10-4	100BBS23-1	RK-FBS-160
FBS-190	5/16-18LN	160BBS04-2	WASH-04	6201LLB-C3	160BBS03-2	160BBS12-3	160BBS05-2	160BBS04-1	100BBS10-4	100BBS23-1	RK-FBS-190

* Washer Kits include: Redraining Rings, Wave Washers, Flat Washers, Bearing Spacer, Nylon Shields, and Snap Rings
 ** Repair Kits include: Locknut, Cone Cover, Washer Kit, Bearings, Turbine Wheel, and Shaft

MLTSS, MLT & MHI, MHISS



MLT/ MHI						
ITEM	QTY	PART NO			DESCRIPTION	
		MLT-130	MLT-190	MLT-250		MLT-320
1	1	5/16-18LN-SS	3/8-16LN-SS	7/16-14LN-SS	7/16-14LN-SS	LOCK NUT STAINLESS STEEL
2	1	130BBS04-1	190MLT04	250MLT04	320MLT04	MILLENIUM TURBINE REAMED COVER
3	2	WASH-02	WASH-05	WASH-05	WASH-06	WASHER KIT
4	2	608LLB-C3	6201LLB-C3	6201LLB-C3	6302LLB-C3	BEARING
5	1	130BBS03-1	190BVS17	250BVS22	320BVS16	GEAR
6	1	160BBS12-2	190BVS16-1	250BVS21-1	320BVS15-1	SHAFT MLT STAINLESS STEEL
7	1	130BVS02	190MLT03	250MLT03	320MLT02	HOUSING
8	1	130BBS04-2	190MLT05	250MLT05	320MLT05	MILLENIUM TURBINE COVER
9	1	5/16-18LN-SS	3/8-16LN-SS	7/16-14LN-SS	1/2-13LN-SS	LOCK NUT, STAINLESS STEEL

MLTSS/ MHISS						
ITEM	QTY	PART NO			DESCRIPTION	
		MLTSS-130	MLTSS-190	MLTSS-320		
1	1	5/16-18LN-SS	3/8-16LN-SS	7/16-14LN-SS	7/16-14LN-SS	LOCK NUT STAINLESS STEEL
2	1	130SS04	190SS04	302SS04	302SS04	COVER STAINLESS STEEL
3	2	WASH-02	WASH-05	WASH-06	WASH-06	WASHER KIT
4	2	608LLB-C3	6201LLB-C3	6302LLB-C3	6302LLB-C3	BEARING
5	1	130BBS03-1	190BVS17	320BVS16	320BVS16	GEAR
6	1	160BBS12-2SS	190BVS16-1	320BVS15-1	320BVS15-1	SHAFT MLT STAINLESS STEEL
7	1	130SS03	190SS03	320SS03	320SS03	HOUSING STAINLESS STEEL
8	1	130SS05	190SS05	320SS05	320SS05	COVER TAPPED STAINLESS STEEL
9	1	5/16-18LN-SS	3/8-16LN-SS	1/2-13LN-SS	1/2-13LN-SS	LOCK NUT, STAINLESS STEEL

Warranty and General Information

Warranty

All warranty claims must be submitted to VIBCO for approval prior to any repairs being done. Failure to do so will void any and all warranty coverage.

Errors, Shortages and Complaints

Complaints concerning goods received or errors should be made at once. Claims must be made within five days after receipt of goods. Clerical errors are subject to correction.

Returning Parts

Parts should not be returned to VIBCO without prior authorization. Call VIBCO customer service department at 1-800-633-0032 (1-800-465-9709 in Canada) for a Return Goods Authorization (RGA) number. A return authorization will be faxed to you. Return shipping must be prepaid. Material returned may be subject to a 10% rehandling charge. All returned shipments should clearly display your name and address. In order to assure proper credit our invoice number, against which parts were returned, must be supplied.

Orders for equipment built to specifications which vary from VIBCO's standard units are not subject to cancellation.

Responsibility

VIBCO cannot be responsible for delays due to strikes, accidents, negligence of carriers or other causes beyond our control.

Freight Claims

Should you receive a shipment from VIBCO which was damaged in transit, your claim is to be filed immediately with the carrier. All parts sold by VIBCO are on the basis of F.O.B. Wyoming, Rhode Island.

Product Changes

The right is reserved by VIBCO to make changes in pattern, design or materials when deemed necessary without prior notice or obligation to make corresponding changes in previous models.

Price Changes

Prices are subject to change without notice.

Ordering Spare Parts

Parts can be ordered through authorized distributors or direct from VIBCO. The following data should be provided when ordering:

- From foot of housing: Model of unit.
- From spare parts list: Reference number, part number, description and quantity required.
- Shipping instructions: Specify shipping point and method of shipping.